REMARKS

This amendment is responsive to the Office Action of June 3, 2003. Reconsideration and allowance of claims 1-17 and 19-21 are requested.

The Office Action

Claims 1 and 15 stand rejected under 35 U.S.C. § 102 as being anticipated by Kormos (US 6,198,285).

Claims 2-14 and 16-21 stand rejected under 35 U.S.C. § 103 as being unpatentable over Kormos.

The Kormos Reference

The Kormos patent (US 6,198,285) suggests the use of a handheld remote control **26** with limited functionality similar to a TV remote control. In the embodiment of FIGURE 4, the handheld remote communicates by infrared to an infrared receiver **30**. The infrared receiver **30** is connected by a fiber optic cable **72** to the remote workstation **48** and other hardware outside of the shielded space **38**. The handheld remote unit can send simple instructions to the workstation such as "start", "stop", or "scan".

In the embodiment of FIGURE 5, the handheld remote **26** communicates to an infrared receiver **30** mounted in a video switching box **86**. The abstract also suggests that the handheld controller can be used to control the images produced. The receiver **30** is connected only to equipment outside of the shielded area and not directly to the display. It appears that the handheld remote sends instructions regarding which images are to be sent over the fiber optic cable to the display.

It will be noted that there are numerous fiber optic cables which run back and forth between the scanner, the controller, and the display.

The Present Application

As is noted in the "Background" portion of the present application, the MR scanner is typically placed in a shielded room and the control components are placed outside of

it. There have typically been cables running back and forth between the scanner and the exterior controls to carry the control signals in and the magnetic resonance signals out. These cables are illustrated in the Kormos patent, but not specifically called out or discussed. These cables present numerous problems. First, they are bulky obstacles. Second, magnetic resonance scanners are very sensitive instruments. This cabling can act as antennas to pick up stray RF signals which interfere with the MR signals. Kormos addresses this later problem by using fiber optic cables, but still uses cables.

The present application proposes to eliminate this cabling by performing most all of the communication within the shielded room wirelessly. Specifically, the signals from the sequence controller to control the application of RF and gradient pulses are sent wirelessly. Further, the resonance signals received from the RF coil are sent wirelessly. Further to the preferred embodiment, to facilitate the use of insertable coils, these signals are communicated wirelessly into the shielded room **A** to a receiver/transmitter unit **32-42** adjacent the scanner and transmitted again between that unit and receiving/transmitting units **44**, **44'** on the RF coils. This facilitates the easy interchange of RF coils without disconnecting and reconnecting cabling. Moreover, the handheld unit **60** includes a video display. The video image signals are also communicated wirelessly through the shielded room.

The Claims Distinguish Patentably and Unobviously Over the References of Record

Claim 1 calls for sending either the sequence control signals from the sequence controller to the gradient field and RF transmitter means wirelessly or the resonance signals from the RF coil wirelessly to the image processing system. Kormos, like the acknowledged prior art, carries these signals via cabling. Accordingly, it is submitted that claim 1 and claims 6 and 7 dependent therefrom distinguish patentably and unobviously over the references of record.

Claim 2 calls for the handheld unit to include a display for displaying images. The images are transmitted wirelessly to the handheld unit. In Kormos, the handheld unit **26** provides uni-directional communication from the handheld unit to associated equipment. The handheld unit **26** has no display and no circuitry for receiving or displaying images on the handheld unit. Accordingly, it is submitted that claim 2 and claim 5 dependent therefrom distinguish patentably and unobviously over the references of record.

Claim 3 calls for communicating information wirelessly from the sequence control system or the image processing system to the wireless remote control unit. Again, the Kormos handheld unit **26** communicates only to the associated equipment. Accordingly, it is submitted that claim 3 and claim 4 dependent therefrom distinguish patentably and unobviously over the references of record.

Claim 8 calls for a two-stage radio frequency transmission of the resonance signals from the receiving coil to the image processing system. Specifically, radio frequency transceivers provide a wireless communication pathway from the RF coil to an RF transmitter. The RF transmitter, which is disposed inside the magnetic resonance suite, transmits the resonance signals from inside the suite to the image processing system disposed outside of the suite. Kormos fails to teach or fairly suggest communicating resonance signals wirelessly, much less a two-stage wireless transmission. Accordingly, it is submitted that claim 8 distinguishes patentably and unobviously over the references of record.

Claim 9 is directed to a method of magnetic resonance imaging in which either resonance exciting and manipulating instructions from outside the MR suite are communicated wireless to the MR scanner, or the received resonance signals are communicated wirelessly from the scanner to an image processor. In Kormos, the resonance exciting and manipulating instructions and the received resonance signals are all communicated via cable. Accordingly, it is submitted that claim 9 and

claims 10-13 dependent therefrom distinguish patentably and unobviously over the references of record.

Claim 14 calls for wirelessly communicating an identification of the RF receiving coil which is mounted adjacent the imaging region. Kormos does not discuss identifying the RF receive coil, wirelessly or otherwise. Accordingly, it is submitted that claim 14 distinguishes patentably and unobviously over the references of record.

Claim 15 is directed to a handheld interface unit which wirelessly receives information to be displayed to the operator and a display for displaying the received information. In Kormos, the illustrated handheld unit has no display and is described in both FIGURES 4 and 5 as transmitting information only. No information receiving or displaying circuitry is described. Accordingly, it is submitted that claim 15 and claim 16 dependent therefrom distinguish patentably and unobviously over the references of record.

Claim 17 is directed to a magnetic resonance imaging system in which sequence instructions are communicated to RF and gradient coils and magnetic resonance signals received by the coils are communicated to an image processing system. Within such a system, claim 17 calls for the sequence instruction and the received magnetic resonance signals to be communicated over radio frequency communication signals within the magnetic resonance suite. Within the magnetic resonance suite or the Faraday shielded region, Kormos communicates these signals over cables like the acknowledged prior art. Accordingly, it is submitted that claim 17 and claims 19-21 dependent therefrom distinguish patentably and unobviously over the references of record.

CONCLUSION

For the reasons set forth above, it is submitted that claims 1-17 and 19-21 now distinguish patentably and unobviously over the references of record. An early allowance of all claims is requested.

Respectfully submitted,

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CERTIFICATE OF MAILING

I hereby certify that this **AMENDMENT A** in connection with U.S. Application Serial No. 09/973,205 is being deposited with the United States Postal Service as first class mail in an envelope addressed to: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450, on this 2nd day of September, 2003.

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